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## THE COLORED BAND DESIGNS.

THE bands given as one of the color supplements in the present number will be found exceedingly useful in many ways, both for china decoration, for which they are especially designed, and also for tinting and embroidery. The coloring for the ivy-leaf border is precisely similar to that given for the maple-leaf plate published last month. It would be found very suitable for a new cylindrical-shaped biscuit jar now in the market, and would match well with cake plates decorated with the maple-leaf design. A section of the border could be used for ornamenting the lid. The same remarks apply to the floral border, as it is our intention to publish soon a cake or card plate, of a design in orchids, similar in coloring and style to the morning glory border. The color for the background of the border in question can be obtained by using Japan rose, and, since this is on Lacroix's list of grounding colors, it will be found easy to lay. Like most of the reds, it is apt to fire out somewhat, so that it must be used stronger than required when finished. It is not absolutely necessary to tint the background at all, because white and gold decorations are now much in vogue. When the ground tint is dry, transfer the design neatly; red transfer paper and a bone tracer will answer the purpose. The color must now be carefully scraped off within the lines of the design, and it would be safer to have the tint fired before applying the gold. It would be a great improvement to put in raised outlines and veins with paste for raised gold, using a matt ground, in the Royal Worcester style. In this case take pink for the ground. Apply the paste with a fine tracer before the first firing. After firing, lay on the gold thinly on the half tones, and thickly over the shadows and lines or over the raised paste. After firing, burnish the outlines, veins, and darkest shadows, leaving the lighter tones unburnished. This will give exactly the effect represented in the design.

## IDEAL HEAD FOR A PLAQUE.

THE charming ideal head, by Ellen Welby, given as one of the Supplement sheets this month, is intended specially for a china plaque or wall panel. This subject will afford excellent practice for beginners in flesh painting, as it presents but few difficulties. For such broad, simple work, the Lacroix may be used in preference to the Dresden colors.

Begin by outlining the features with red brown, to which add a little ivory black. Allow the outline to dry thoroughly before proceeding. For the local flesh tint, take either flesh red No. 1, mixed with a very little ivory yellow, or capucine red only; the latter color is perhaps more to be depended on in the firing, the first named being apt to fire out too much. In either case, the tint must be put on stronger than it is intended to appear when finished. Add to the colors selected a few drops of tinting oil and a very little spirits of turpentine. Apply the tint with a broad, flat tinting brush; it should be mixed to a consistency that will allow it to flow freely from the brush. When it is laid as evenly as possible, take a good sized fitch blender, or a pouncer, made by tying up some cotton wool loosely in a soft piece of fine old cambric or silk, and pounce the tint briskly but lightly until it is perfectly smooth in every part. For the blue eyes, deep blue green, brown green and black may be used. Paint the eyebrows and lashes with dark brown. Mix a delicate shade with deep blue green and black for the whites of the eyes. Touch a little red brown into the lips. For the few delicate shadows expressed in the original, mix with the flesh color already prepared some deep blue green and black. The shadows should be put in while the local tint is still wet. Outline the hair with dark brown and blend the local tint on, when the markings are dry, with yellow brown, to which add a touch of ivory yellow, or with a mixture of ochre and black. For the pale turquoise blue scarf, bound around the head, mix ultramarine blue and emerald green; shade and outline it with the same, adding some sepia and a little black. Shade the white drapery with neutral gray. If not strong enough in parts, add a little black. Leave the china clear for the light parts, and accentuate them with a few touches of white enamel. For the background, take celadon green, which fires somewhat the color of a duck's egg. Secure the drawing of the flowers by going over the outlines with India ink; then pass the tint over the whole of the background. Mix it, as before directed, with tinting oil and turpentine, and afterward blend it. Re-

move the tint from the flowers when dry; the leaves can be painted over it with grass green and brown green, outlined with sepia. The roses should be very pale yellow. For this, take ivory yellow only; outline the roses also with sepia; and as this color fires out somewhat, use it strongly without fear. It is, of course, not intended that after firing the outlines in the background shall be nearly so pronounced as for the head, and it is for this reason that sepia is recommended.

## THE PUNCH-BOWL DESIGN.

FOR this design (see Supplement), use either carnation or green. By using several of the shades of green very good effects can be obtained. Over the band and background of the bowl put on a delicate wash of moss green. Then define all the indistinct leaf suggestions and the heads with touches of brown green. For still deeper green, to give the darkest touches around the heads, use green No. 7, but not too strongly. The backgrounds of the medallions may be left in the white of the china or a pale cream or even a delicate café au lait tint may be put on. The vine and leaves and grapes can then be painted in moss green and outlined in brown green. Dull gold can be introduced for border lines if preferred, but the treatment all in greens will be quite as effective. By using two or three shades of carnation, the same effects can be obtained. Old blue would also be a good color for this decoration, paler blue being used for the first wash; add a little deep purple to deep blue for outlining.

## THE BUTTER SET.

THE following directions are furnished by M. L. Macomber for painting the butter dish and plates illustrated on the preceding page: For the flowers, use mixing yellow and jonquil yellow, shaded with brown green; for the stems, brown green and mixing yellow, shaded with brown green. The ground of the light band on the large dish may be almost white; the form of the water-like scroll is to be only slightly indicated with washes of warm greenish gray, with but little variation of tone, making a luminous light, warm gray ground for the flowers. This is the lightest part of the dish. The lower middle and upper left small dishes are to be treated in the same manner. The outside band is to be the darkest in coloring. The ground of this should be brown, of a darker shade at the inner edge. The ground of the central portion of the dish is also brown, the widest of the bands which border it being of a brownish green. Of the small plates, the ground of the upper middle and lower right-hand plates is to be brown, and that of the lower left-hand and upper right-hand plates, green of a cooler shade than the stems. All the narrow light bands are white. The centres and the darker bands of the small plates may be either brown, green or yellow, as best harmonizes with the color of the ground chosen. All the outlines are in gold.

## A HAND SCREEN, AFTER BOUCHER.

THE highly decorative design after Boucher, given on the opposite page, is obviously intended for a hand screen, but it would also serve for one of the old-fashioned standard fire screens illustrated on the last page of our December number. If utilized in this manner, the design should be painted directly on the wood, and after a sufficient time has been allowed to elapse, the whole should be varnished with spirit varnish. For a hand screen, nothing would be prettier than cream-colored satin or silk; the painting should then be carried out preferably in water-colors, although it is quite possible to execute it in oils, with the aid of a little fresh spirits of turpentine to prevent the color from running. If water-colors are preferred, it will be necessary to use Chinese white in some parts, in order to get sufficient effect; in fact, the work should be treated exactly in the same manner as delicate fan painting. The following scheme of color, if carefully carried through, will bring out the feeling of the design to advantage. The groundwork of the border, represented by straight lines, might be a delicate fawn color, that represented by dots a pale salmon pink; the scrolls must be shaded gold, the foliage a cool gray green, the flowers of varied hues, the sky a pale azure, the grassy bank in the foreground yellowish green, broken up with green of a cooler shade. For the drapery on the figure, use a light lilac tint for the skirt, and lemon color for the overdress. Keep the work neat and clear, and accurate in drawing.

## Amateur Photographer.

## DEVELOPMENT.

MY experience has taught me that something more is required for the proper development of the latent image than the possession of a good formula and the ability to compound it, that there are laws of development which must be known and followed before the operator can hope to approach development intelligently. These laws constitute what we may term the philosophy of development. This will form the subject of the present article. As the end of development is the production of a negative which will yield a print of a desired quality, the first step is the knowledge and appreciation of the qualities which the various printing processes now commonly employed demand in a negative. There is no question here of sharpness of outline or artistic quality. These are taken for granted.

Detail and intensity must be placed first among the necessary qualities of a good negative. There must be no large patches of blank shadow, and the density must be proportioned to the printing process likely to be used in making the final print.

By far the larger portion of the subjects which are sought to be reproduced by means of photography are those in which there is an infinite gradation of tone from high light to intense shadow. Theoretically the perfect negative is obtainable only under the condition of giving to each portion of the subject an exposure proportionate to the rapidity of its action on the sensitive film. But this is evidently an impossibility. What the photographer actually does in practice is to give an equal exposure to objects unequally lighted, thus introducing special difficulties in the later operation of development.

Those parts of the subject which are most strongly illuminated act with greater energy on the sensitive film than those less strongly lighted, and do so probably in direct proportion to the degree of the illumination. Hence, when the developer is applied, the high lights, as they are called—that is, those portions of the view which were most strongly illuminated—appear first, and are followed by the less intensely lighted portions, and these in turn by the darker parts, thus giving the tone gradation, which is so marked a characteristic of a good negative.

If a proper exposure be had, the details are obtained by continuing the development until these are well out in the deepest shadows. Save in exceptional cases, no part of the negative should be devoid of a certain amount of detail. From this we may deduce the first general rule or principle governing development:

The development must be continued until all the detail is visible in the clear or white portions of the negative, which correspond to the shadows of the subject.

We may best study the question of intensity by distinguishing between local and general intensity. The former being the direct result of the unequal lighting of the subject, it reproduces the differences of tone gradation. It is determined by the intensity of the rays of light reflected from the different parts of the view, and it is generally independent of the operator, who, however, has it in his power to modify slightly the final result.

General intensity is the degree of density which must be given a negative in order to obtain good positives from it. There must be a certain degree of obstruction to the free passage of light through different portions of the negative.

It is quite possible for a negative to have detail and local intensity without being a good printer, for the reason that it lacks general or printing density. This may be too weak, in which case the prints will be monotonous and tame; or it may be too strong, giving only harsh prints. The remedy in the first case is intensification, in the second reduction, neither of which, if properly conducted, affects the local or artistic intensity, for if it did, successful intensification and reduction would be impossible.

In addition to the rendering of detail, then, the operator must seek to give his negatives the degree of printing density best suited to his favorite printing process, since the different printing methods require negatives of varying density—the carbon process requiring thin and harmonious negatives, the albumen process, those of medium density, and the platinum process, those of greater strength.

Nothing is more detrimental to successful development than the belief that detail and density can be



THE FIRST OF A SET OF DESIGNS FOR PAINTED HAND OR FIRE SCREENS. AFTER BOUCHER.

(FOR SUGGESTIONS FOR TREATMENT, SEE OPPOSITE PAGE.)



secured simultaneously. This is the weakness of all one-solution developers, that they are based on the false assumption that detail and density go hand-in-hand. Only in the case of negatives of feeble contrasts and proper exposure do the rendering of detail and the acquirement of printing density hold an equal place. But how often are these conditions realized? Not once in a hundred exposures. When the negatives present strong contrasts, and the time of exposure has been more or less wrong—as it usually is—the application of the developer reveals the difficulty of obtaining detail and printing density at one and the same time. The high lights, which are the first to appear, continue steadily to gain in intensity, and long before the details in the shadows are well out the density of the high lights has passed the proper degree. Such a negative will give harsh prints in which the contrasts are exaggerated. The proper method of development in such cases, is to hold back the density until the details are well out, by developing for detail first.

In the opposite case, where we have to deal with exposures on subjects feebly lighted and devoid of contrasts, the development must be for density first, if we would avoid foggy and weak negatives. This gives us our second rule or principle of development.

If these principles are well founded, it follows that a knowledge of the best methods of obtaining both density and detail is essential to anything like true development. These methods will be discussed later on. As a step in this direction, I propose now to discuss briefly the conditions outside of the developing room, which have much to do in determining both detail and density.

First on the list, I place the influence of the plate itself. It is far from being a matter of indifference whether we use slow or rapid plates. No manufacturer of sensitive plates will care to dispute the assertion that the quality and speed of the plate affect, even if they do not determine, the finished result.

With the slower grade of plates, printing density is a matter of comparative ease. It is in the rendering of detail that the difficulty begins. With rapid plates the conditions are reversed. Detail is easily rendered, but printing density does not always accompany the rendering of detail.

Slow plates have a tendency to increase contrasts, unless the time of exposure is purposely prolonged to avoid this difficulty. Rapid plates tend to diminish contrast, and so to produce more evenly lighted prints.

For the beginner, there is nothing better than a plate of medium density, since they have not the same tendency to fogging which is noticeable in rapid plates, always remembering that with slow plates the time of exposure should be lengthened to avoid excessive contrast, while with rapid plates the time of exposure should be made as short as possible to avoid fog.

Another important element in the character of the negative, and consequently of the print, is the nature of the objects to be reproduced. Careful study of the view to be photographed is essential to success.

M. Londe's division of the different photographic subjects is so true and helpful that I make no apology for reproducing it. The division is threefold:

1. Subjects which have a perfect harmony of tone gradation.
2. Subjects which present strong contrasts and oppositions.
3. Subjects which have not enough of contrast and opposition, and are consequently weak.

Now, it is very evident that the same method of exposure and development cannot be adopted in all these cases—that some modifications are necessary in order to bring out the very best of which the view is capable.

It is a fact established by observation that if light is allowed to act upon a sensitive surface the effects of the light-action increase up to a certain point, and that beyond this point the intensity gradually diminishes, the light seeming to destroy the effects of its own work.

The law of reduction is this: The intensity of reduction is directly proportional to the length of time during which the action of light has been continued up to a certain point, which for any given plate may be called its fogging point. Beyond this point the effect is inversely as the action of light.

In practice, then, we obtain an increasing degree of intensity by lengthening the time of exposure so long as we keep within the limit where the inverse action begins.

It is easy to see the importance of this principle, since the knowledge of it practically applied enables us to modify at will the results of an exposure.

With subjects of the first class, the time of exposure should be as nearly correct as it is possible to make it. Subjects of the second class should be somewhat over-exposed, both in order to secure the detail in the dimly lighted portions and to reduce the density of the high lights. Subjects of the third class require a brief exposure in order to increase the contrasts.

The reader who has followed me intelligently thus far is prepared to profit by the succeeding remarks on the general principles of development, which are here given only after a thorough test of their value in the developing and printing rooms.

As the pyro developer is more flexible than any other in common use, I have taken it as the standard of judgment, but the principles are equally applicable to all forms of developers.

In the development of an exposed plate, either of two methods, the automatic or the tentative, may be adopted. I use the expression automatic development with reference to that method in which the plate is left to its fate in a ready mixed solution, without any modifications being made to suit the seeming exigencies of the case. All one-solution developers, as well as those in which a given formula is blindly followed, come under this head. I have a well-founded distrust and lack of confidence in the method of automatic development, which is rapidly becoming popular with amateurs of a certain class, whose one aim seems to be to reduce photography to a mere mechanical routine. The reasons for this distrust will be given in a later chapter, and need not be anticipated.

The tentative method of development, which I believe to be the only rational and philosophical method, is based upon the wise and intelligent adaptation of means to ends.

Starting with a thorough knowledge of the leading features of the view on the plate, and a perfect understanding of the effects to be produced, the various ingredients of the developer are so proportioned as to lead up to the desired result. From time to time, as need arises, various modifications are made. "Festina lente" is the motto of this method. A wise caution is exercised at the outset, constant vigilance is maintained till the end of the developments and a wise intelligence recognizes and meets all the exigencies of the case as they present themselves.

I would lay it down as an axiom seldom to be deviated

from, that all development should begin slowly with a developer relatively weak in both accelerator and reducer. In this way the image will not surprise one by a sudden appearance and an equally sudden disappearance in a veil of fog. So far from beginning with a bath of maximum or even normal energy, I would advise a bath of minimum strength, save in those special cases, to be mentioned later, where a different method is absolutely necessary. In this way the operator remains an easy master of the development.

Several methods of reducing the strength of the developer are open to the operator. He may either diminish the quantity of the components of the solution or dilute it with water or finally add a trace of bromide. It is by no means a matter of indifference which of these methods is adopted, since each modification produces a different effect.

The diminution of the quantity of the accelerator and reducer is valuable chiefly because it allows a wider range of subsequent modification to suit special needs.

The addition of bromide retards the development and tends to increase contrast. Hence its use is indicated for negatives of evenly lighted subjects where all possible contrast is sought. When the developer is diluted with water the development proceeds slowly, because the constituents of the solution are not present in sufficient quantities to produce a rapid reduction. The tendency of a diluted bath is to produce softness, and it should be employed in cases of known over-exposure when softness is desired.

If the development was begun with a bath weak in alkali and reducer, and it is desired to bring out the details before giving printing density, as is usually the case, successive small additions of the alkali are made until the detail in the shadows is well out, then a final addition of pyro confers printing density.

As an example, let us take the case of a subject of strong contrasts, which was intentionally over-exposed to diminish the contrasts. The proper method of development would be to begin with a small percentage of pyro and carbonate-diluted developer, adding the carbonate gradually in small quantities until the details are well out in the shadows. If the development were stopped at this point we should have a negative full of detail and of good local density, but lacking in general or printing density. This is gained by adding pyro until the general density is judged to be sufficient.

If the whole amount of pyro ultimately employed had been present in the solution from the start, the result would have been a negative in which density had been reached before the details were all out, the contrasts would be too strong, and it would present the appearance of an under-exposed plate.

If the view belongs to the third class—that is, if it lacks contrast and opposition, density must be given before the details are entirely brought out, by the addition of the carbonate in smaller quantities and the use of pyro to confer density.

This is the only rational method of development, and the fact that it requires intelligence on the part of the operator should be an argument in its favor with those who regard photography as something more than a press-the-button one-solution sort of business. It is the only method which gives the operator an easy mastery of his negative and enables him to produce effects of various kinds. It is, I have reason to believe, the method of the masters in photography.

W. H. BURBANK.

